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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/010,020 | 12/05/2001 | Gary B. Gordon | 10002431-4 | 5593 |

7590

12/02/2004

AGILENT TECHNOLOGIES, INC.
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EXAMINER

FORMAN, BETTY J

ART UNIT

PAPER NUMBER

1634

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/010,020

Applicant(s)

GORDON, GARY B.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,10,11,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,10,11,14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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FINAL ACTION

Status of the Claims

1. This action is in response to papers filed 27 September 2004 in which claims 8, 10 and 14 were amended and claims 9, 12-13 and 16-25 were canceled. All of the amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 2 August 2004, not reiterated below are withdrawn in view of the amendments. Applicant's the arguments have been thoroughly reviewed and are discussed below as they apply to the instant grounds for rejection.

Claims 8, 10-11 and 14-15 are under prosecution.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 8, 10, 11 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Smith et al (U.S. Patent Application Publication No. 2002/0001803 A1, filed 20 July 1999).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C.

102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

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CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding Claim 8, Smith et al disclose an array hybridization method comprising introducing a sample liquid into a reaction cell so that some of the interior volume is partially occupied by sample liquid and partially occupied by gas (i.e. the sample liquid within the cell incompletely fills the cell which would further be filled with air, ¶ 48 and Fig. 3) centrifuging said sample liquid by rotating said cell having a probe array so that centrifugal forces in excess of 1G (¶ 50, lines 6-16) urge the sample liquid against the array and agitating said sample liquid in the reaction cell during centrifugation wherein the agitation involves rotating the sample cell about an axis that is more orthogonal to than along said centrifugal force i.e. not perpendicular (¶ 50 and Fig. 3) so that said sample liquid moves relative to the array (¶ 50-52 and Claims 1-6).

Regarding Claim 10, Smith et al disclose the method wherein said agitating involves periodically changing the direction of rotation about the agitation axis (¶ 50, lines 16-22).

Regarding Claim 11, Smith et al disclose the method wherein the said centrifugation involves rotating said cell at a centrifuge rate greater than agitation rate (¶ 50).

Regarding Claim 15, Smith et al disclose the method wherein the sample liquid occupies at most half of the interior volume (Fig. 3).

Response to Arguments

4. Applicant asserts that in contrast to the instantly claimed "more orthogonal" agitation, Smith teaches agitation about an axis along or parallel to a centrifugal force. The argument has been considered but is not found persuasive. Fig 3 illustrates the axis of centrifugation (#28) axis of agitation ("A") and axis perpendicular to the agitation cycle ("Y"). As illustrate, the agitation ("A") is closer to perpendicular to rather than along axis of centrifugation.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, 10-11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robbins et al (U.S. Patent No. 5,380,662, issued 10 January 1995).

Regarding Claim 8, Robbins et al teach a reaction cell (bottle) having a hybridization array (nucleic acid blots on a membrane, Column 3, line 7-10) so that some interior volume is partially occupied by a sample liquid and partially occupied by gas (Fig. 4) wherein centrifugation (via rotational force, column 3, lines 43-47) of the sample liquid is by rotating the reaction cell whereby agitation of the sample during the centrifugation moves the sample relative to the array (Column 3, lines 4-57 and Abstract).

Robbins et al further teach their device is primarily used for nucleic acid hybridization (Column 3, lines 7-8) but they do not specifically teach the claimed steps of introducing a liquid sample into the reaction cell. However, the primary use being hybridization clearly suggest doing so. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the device of Robbins et al to hybridization wherein a sample is introduced into their hybridization bottle based on their suggestion of using their device for hybridization.

Robbins et al teach applying rotation force via centrifugation i.e. rotation about an axis (Column 3, lines 43-47). While they do not specifically teach a force in excess of 1G, the claimed force is inherent in the rotational "force" of Robbins. Alternatively, it would have been

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obvious to one of ordinary skill in the art at the time the claimed invention was made to modify rotational force of Robbins et al to obtain a force in excess of 1G based on desired results.

Robbins et al further teach the agitation involves rotating the cell about an agitation axis wherein the angle of agitation "offset" from the centrifugation angle (Column 7, lines 54-62).

Regarding Claims 10-11, Robbins et al specifically teach adjustment of the agitation based desired application (Column 7, line 54-Column 8, line 22). While they do not specifically teach changing direction of rotation or relative rates of rotation and agitation their teaching of adjustability clearly suggests doing so. It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify change the direction and/or rates of rotation and agitation based on the suggestion of Robbins to do so (Column 7, line 54-Column 8, line 22).

Regarding Claim 15, Robbins et al illustrate the liquid occupies less than half of the volume (Fig. 4) and they clearly suggest so wherein they teach the agitation provides uniform coating and wetting of the membrane while using minimum amount of solution (Column 3, lines 23-30).

Response to arguments

7. Applicant asserts that in contrast to the instant claims, the method of Robbins provides a single axis for both rotation and agitation. The argument has been considered but is not found persuasive because, as stated above, Robbins clearly teaches "offset" agitation (Column 7, lines 54-62 and Fig. 4). Figure 4 illustrates the agitated bottle from the side. As illustrated, the bottle is agitated from left to right as indicated by the fluid level within the bottle. In contrast to the agitation, the rotation is provided by moving the bottles about a wheel as illustrated in Fig. 3 wherein bottle #62 is held within clamp 60 as the bottle is rotated about shaft #50. Hence, Robbins teaches the axis as claimed.

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Applicant argues that Robbins does not teach introducing a sample liquid as claimed. The argument has been considered. However, as stated above, even though Robbins is silent about sample introduction, Robbins et al teach their device is primarily used for nucleic acid hybridization (Column 3, lines 7-8). The primary use being hybridization clearly suggest doing sample introduction because without sample introduction, the hybridization of Robbins would not occur. Therefore, it would have been obvious to one of ordinary skill in the art to introduce a sample into the bottle based on the hybridization suggestion of Robbins.

Applicant asserts that Robbins does not teach or suggest the reaction cell be partially filled with air. The argument has been considered but is not found persuasive because Robbins clearly illustrates the bottle in Fig. 4 and teaches sloshing within the bottle (Column 8, line 5) during agitation. The claim merely requires "partially occupied by gas". The claim does not require filling the bottle with a defined amount of a specific gas. In contrast, the claim merely requires some gas in the bottle. While Robbins does not specifically teach gas in the bottle, sloshing could not occur absent the presence of liquid and some gas e.g. air.

Applicant asserts the blot of Robbins is not an array as claimed. The assertion is noted but Applicant has not pointed to any evidence or definition within the specification defining the claimed array over the blot of Robbins.

Applicant argues that the rotation of Robbins does not inherently provide forces in excess of 1G as claimed. Applicant further argues that Robbins does not teach urging or agitating the sample against the array. The argument has been considered but is not found persuasive because as stated above, Robbins et al specifically teach applying rotation force via centrifugation i.e. rotation about an axis (Column 3, lines 43-47). Furthermore, they teach "sloshing" within the bottle (Column 8, line 5). While they do not specifically teach a force in excess of 1G or the term "urging", the claimed force is inherent or an obvious application of the rotational "force" and "sloshing" of Robbins.

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8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Robbins et al (U.S. Patent No. 5,380,662, issued 10 January 1995) in view of Trulson et al (U.S. Patent No. 5,834,758, issued 10 November 1998).

Regarding Claim 14, Robbins et al teach a reaction cell (bottle) having a hybridization array (nucleic acid bolts on a membrane, Column 3, line 7-10) so that some interior volume is partially occupied by a sample liquid and partially occupied by gas (Fig. 4) wherein centrifugation (via rotational force, column 3, lines 43-47) of the sample liquid is by rotating the reaction cell whereby agitation of the sample during the centrifugation moves the sample relative to the array (Column 3, lines 4-57 and Abstract). Robbins et al do not teach removal of the sample.

Trulson et al teach a similar array hybridization method comprising introducing a sample liquid into a reaction cell so that some of the interior volume is partially occupied by sample liquid and partially occupied by gas (N₂ bubbles) and agitating said sample liquid in the reaction cell during centrifugation so that said sample liquid moves relative to the array (Column 9, line 27-50 and Column 14, lines 12-42) and further comprising removing sample liquid from the reaction cell wherein removing the liquid involves rotating (agitating using injected N₂) to force fluid away from the array (Column 14, lines 12-60). Trulson et al further teach the agitation system effectively moves fluids into and out of the reaction cell (Column 9, lines 37-40 and Column 14, lines 36-40).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the sample removal of Trulson et al to the hybridization device of Robbins for the expected benefit of efficient fluid movement into and out of the reaction cell as illustrated by Trulson et al (Column 9, lines 37-40 and Column 14, lines 36-40).

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Response

9. Applicant has provided no specific arguments traversing the above rejection. The rejection is maintained.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 8, 10-11 and 14-15 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of copending Application No. 09/792,169. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to methods comprising the steps of introducing a liquid into a reaction cell, centrifuging the sample by rotating the cell and agitating (mixing) the sample. The sets of claims differ only in the arrangement of limitations. For example, instant Claim 1 is drawn to an array hybridization method while Claim 1 of the '169 application is drawn to a method for contacting components and dependent Claim 12 limits the method to hybridization. As such, both sets of claims are drawn to similar methods which are not patentably distinct from each other.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

12. It is noted that the above rejection is reiterated from all previous rejections. The previous response stated Applicant's intention to file a Terminal Disclaimer upon indication of allowable subject matter and the merits of the rejection were not traversed. Applicant now traverses the rejection citing a typographical error in the serial number. The error is acknowledged and corrected herein. Because all of Applicant's earlier responses addressed the merits of 09/792,169 (now correctly identified above), it is assumed by the examiner that Applicant was aware of which application was being discussed. The rejection is maintained.

13. The previous rejection under the judicially created doctrine of obviousness-type double patenting over claim 51 of copending Application No. 09/900,294 is withdrawn in view of the amendments to the '294 claim.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Conclusion

15. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.


BJ Forman, Ph.D.
Primary Examiner
Art Unit: 1634
December 1, 2004